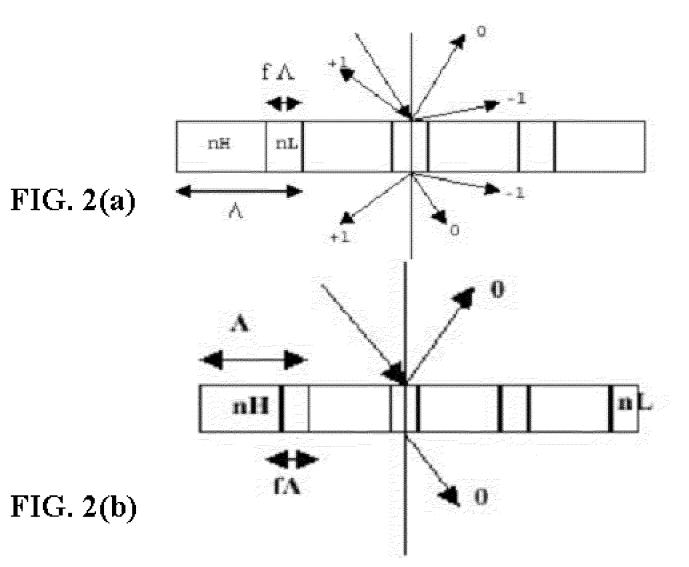


Fig. 1.



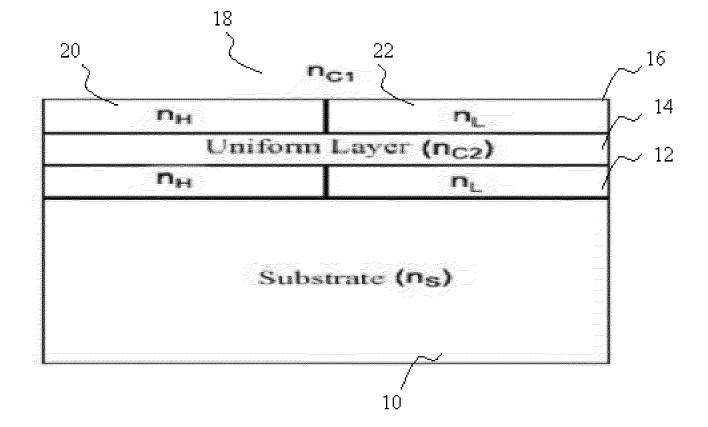


Fig. 3.

Table: Materials average refractive index for 3 – 12 $\,\mu$ m

Materials	Notation	Refractive index	
Barium Fluoride (BaF) (Substrate)	$ m n_{S}$	1.47	
Zinc Sulphide (ZnS) (Uniform Layer)	$n_{ m C2}$ or n_2	2.22	
Yittrium Oxide (Y_2O_3) (Low Index Grating Material)	$n_{f L}$	1.69	
Diamond (High Index Grating Material)	n _H	2.37	
Air (Superstate)	$n_{{ m Cl}}$	1.0	

Fig. 4.

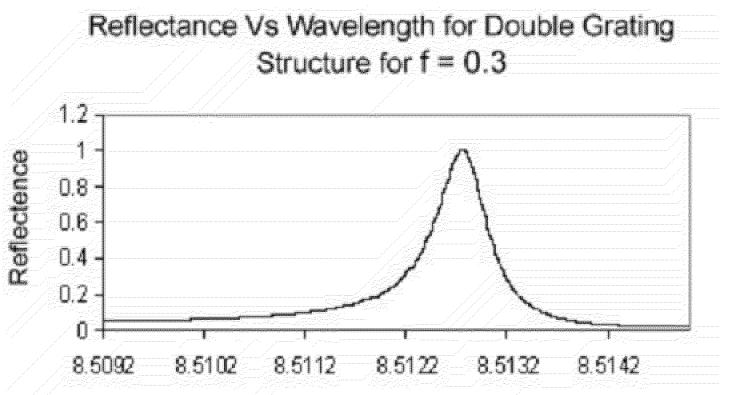


Fig. 5(a). Wavelength (Microns)

Reflectance Vs Wavelength for Double Grating Structure for f = 0.5

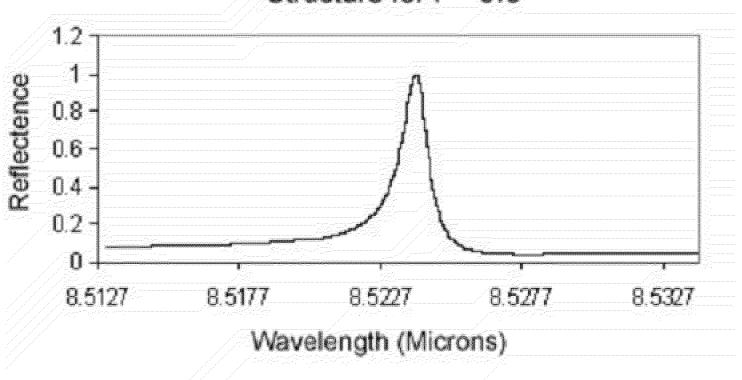


Fig. 5(b).

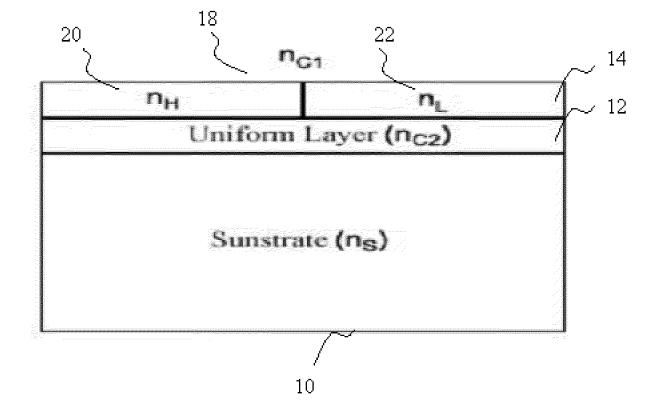


Fig. 6.

Reflectance Vs Wavelength for Single Grating Structure for f = 0.3

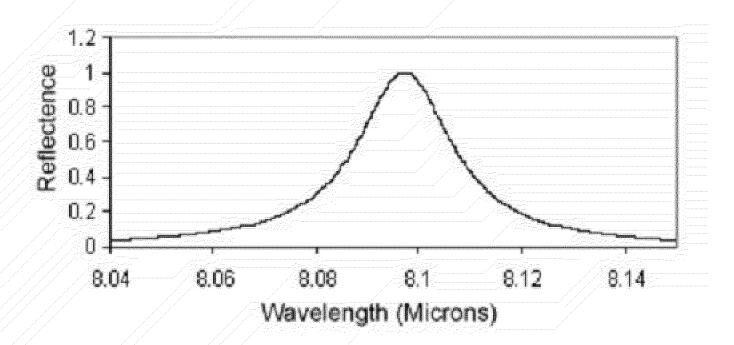


Fig. 7(a).

Reflectance Vs Wavelength for Single Grating Structure for f = 0.5

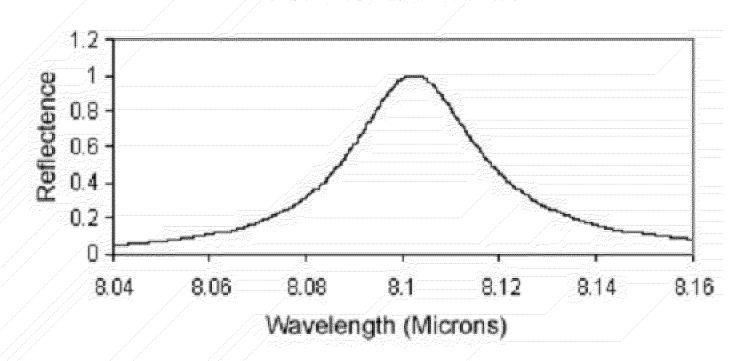
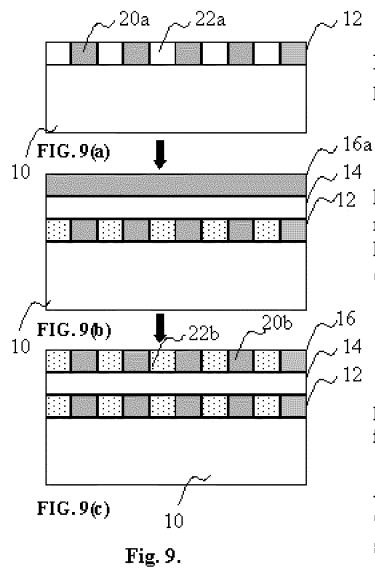


Fig. 7(b).

 $Table: Performance\ comparison\ between\ proposed\ and\ conventional\ filters$

Estimated Performance	Fill Factor 0.5		Fill Factor 0.3		
	Single Gratin E	Double Grating	Single Gratin g	Double Grating	Conventional 1/4 Stacks
Peak Wavelength (#m)	8.102 2	8.523	8.097	8.512	8
Peak Transmission (%)	>99.9 9	>99.9 9	>99.99	>99.99	>99.99
Bandwidth (mm)	31.45	1.211	22.23	0.638	453
Leakage (%)	<2	<3	<2	< 3	40
Grating Spacing (µm)	4.6	4.7	4.6	4.7	—
T hic kness (µm)	1.981 1	3.061 3	2.0191	3.1373	100

Fig. 8.

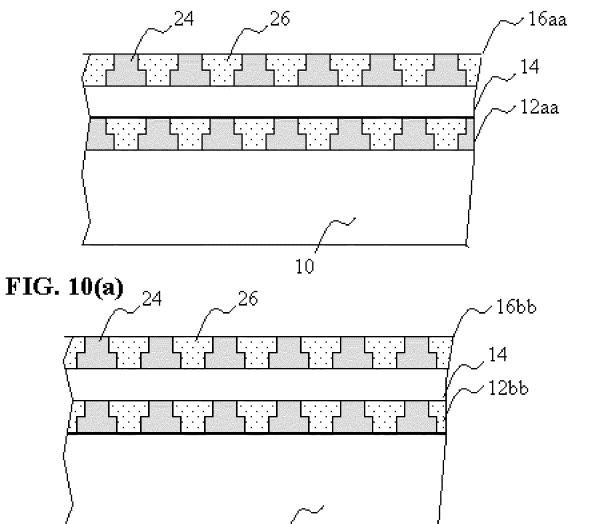


High index film deposition, patterning and dry etching

low index film deposition, and making planarization, and uniform layer and high index material deposition

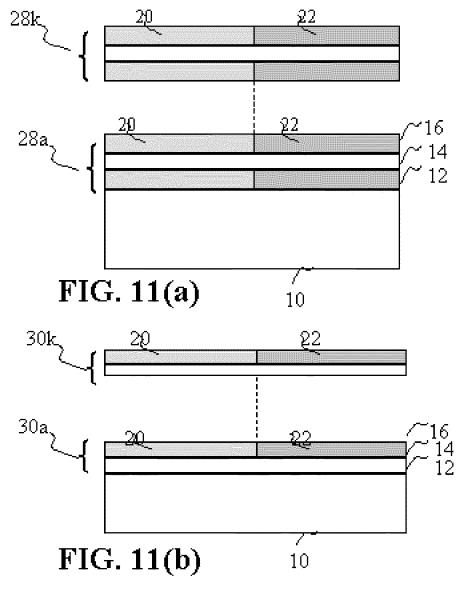
patterning, dry etching, low index film deposition, and planarization

Antireflection coating is deposited on the top of the grating layer



10

FIG. 10(b)



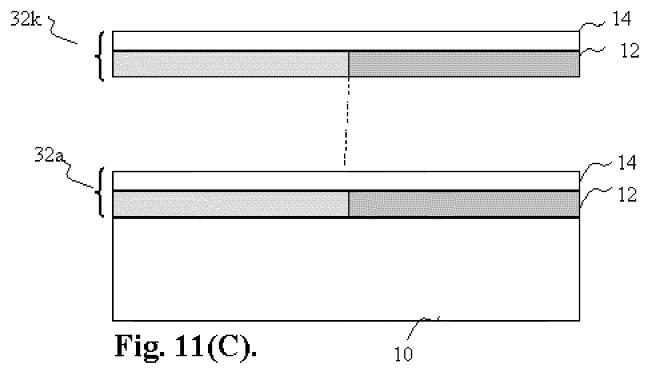


Fig. 11.

